

Oral and Dental Aspects



Scleroderma

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Support for sufferers

The Raynaud's & Scleroderma Association offers support and practical advice to sufferers on the problems of day-to-day living. On joining the Association, members receive quarterly newsletters giving up-to-date information on research and treatments.

Further information on Health Professional booklets and patient literature is available from:

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Scleroderma - Systemic Sclerosis (SSc)

The word scleroderma comes from two Greek words, 'sclero' meaning hard and 'derma' meaning skin. Scleroderma is a disease of the immune system, blood vessels and connective tissue. In this condition the skin, usually of the hands and feet, becomes stiff, tight and shiny. This is because of swelling and then thickening of the connective tissue which becomes fibrotic or scarred. Scleroderma patients may have problems with dryness of the mouth and eyes, due to a decrease in secretion from the salivary and tear glands. They may experience difficulty in swallowing, bloating or abdominal pain, tiredness, lack of energy, general weakness, weight loss and aching muscles, joints and bones. Involvement of the lungs, heart and kidneys may occur.

Types of scleroderma

Diffuse Cutaneous Systemic Sclerosis (dcSSc)

Shortly after the onset of Raynaud's, the patient presents with skin changes (puffy or hidebound), has truncal skin involvement and 'creaking' tendons at joints e.g. wrists and elbows. Early lung disease, kidney, gastro-intestinal and heart involvement may become evident, in some patients. There are changes in the nailfold capillary and certain antibodies may be present in the blood. A specific marker of scleroderma, usually the progressive diffuse form, is Scl-70 which is present in 30% of patients. Anyone with diffuse SSc needs to be checked frequently (at least every 6-12 months), in the first 5 years.

Limited Cutaneous Systemic Sclerosis (lcSSc)

Patients with limited SSc will have had Raynaud's for years, occasionally decades, and there will be skin involvement to the hands, face, feet and forearms. These patients used to be classified as having CREST. Patients with limited disease also need checking every 6-12 months, depending on the stability of the disease.

Localised Scleroderma

There are two types of localised scleroderma - morphea, linear or a mixture of the two. These types of scleroderma are more common in childhood-onset disease but can affect any age group.

Morphea affects the skin, beginning with an inflammatory stage, followed by the development of one or many, slowly enlarging patches or plaques. These plaques are usually oval in shape but vary in size and colour and may enlarge or shrink, sometimes disappearing spontaneously.

Linear scleroderma usually develops in childhood and can affect the growth of a limb. It is a form of localised scleroderma, which starts as a band-like thickening of skin, usually limited to one area such as an arm, leg or forehead (en coup de sabre). Unlike morphea, linear scleroderma tends to involve layers of tissue below the skin. It can sometimes affect the muscles and bones and finally the mobility of the underlying joints.



Good mouth care in scleroderma

Scleroderma can give rise to a variety of oral problems (Table 1), most commonly, limited mouth opening and sometimes a dry mouth (xerostomia). Good mouth care is essential for patients with scleroderma, helping to keep the mouth free of dental decay (caries) and gum disease (gingivitis) and lessening the discomfort associated with mouth dryness (xerostomia) or mouth stiffness.

TABLE 1 **ORAL MANIFESTATIONS OF SCLERODERMA**

Reduced mouth opening (microstomia)
Dry mouth (xerostomia)
Telangiectasia (red patches)
Possible increased liability to dental decay and gum disease
Candidal (fungal) infections
Erosion of facial bones (rare)
Gum enlargement (rare)
Salivary gland enlargement (rare)
Mouth ulcers (rare)
White patches (rare)

Small mouth (microstomia)

A small mouth in scleroderma is caused by a general tightening of the skin over the face, making lip and mouth movements, as well as oral hygiene, difficult. Reduced mobility of the tongue may affect chewing, swallowing and sometimes speech.

Mouth stretching exercises and facial grimacing are probably the best treatment for this problem.

Exercises

- Cover the teeth with the lips then open the mouth as wide as possible without the teeth showing
- Close lips and press hard (as if blotting lipstick)
- Open the mouth so that the lips are as wide apart as possible
- Open the mouth so that the teeth are as far apart as possible
- Push the jaw forward to create an underbite (bottom teeth in front of the upper teeth)
- Make a wide a grin as possible without showing the teeth



Prevention of dental decay

Dental decay (caries) is due to destruction of the tooth substance by acids produced by dental plaque.

Dental decay can be minimised by:

- Effective tooth-cleaning
- Control of dietary sugars
- Use of fluorides

Tooth-cleaning

Dental plaque can be removed by tooth-brushing but often effective cleaning between the teeth is only possible using a suitable interdental cleaning aid, such as dental floss. Teeth should be brushed at least twice daily.

The Ideal Toothbrush

The ideal toothbrush should have nylon bristles of an even length, and of medium hardness. The toothbrush should be small enough to be easily placed in the mouth and yet suitably designed to effectively remove all the dental plaque - a toothbrush head of about 1cm length is usually sufficient. Soft brushes will not effectively remove plaque and debris, and are only recommended when there is extreme dentine hypersensitivity. Hard brushes are not advisable as they can cause wearing of the teeth (toothbrush abrasion) and may lead to dentine hypersensitivity. A variety of manual brushes are available and include:

Angled brushes

Facilitate access to areas of the mouth that are difficult to reach. These often have small heads and flexible handles and are therefore ideal for patients with scleroderma.

Altered filament length brushes

These brushes clean above and below the tooth without causing overbrushing. They are excellent for patients with generally healthy mouths.

Easy-grip brushes

Particularly useful for patients who do not have the strength to grip closely or firmly (for example, patients with Raynaud's). The toothbrush handle can be altered by fixing a ball of sponge rubber, nail brush or bicycle handle bar grip to the brush handle.

Extended-handle brushes

Effective for patients who cannot raise their arms. Two toothbrush handles can be glued or taped together or a tongue depressor can be taped to the brush handle.

Electric toothbrushes

Increasingly popular and are often more effective than some manual in removing plaque. They are ideal for patients with scleroderma who have limited manual dexterity. The electric toothbrushes are now light and easy to hold.



Toothbrushing techniques

The ideal toothbrushing technique should remove the plaque but not cause any damage to the teeth or gums. The two methods that are best suited to patients with scleroderma are:

The Roll technique

This is particularly useful for patients with healthy gums. The brush is placed with bristles on the gum tissue, the bristles are then pressed onto the gums making them blanch; maintaining the same pressure the bristles are moved across the gums onto the tooth surface. Behind the front teeth, the brush is held vertically and gently moved upwards and downwards.

The Bass technique

This is useful for patients with pre-existing gum disease. The bristles of the toothbrush are placed on the gum margins such that they point away from the crown of the tooth at an angle of 45°. The brush is vibrated backwards and forwards with a horizontal movement to gently dislodge the plaque. This can be a time-consuming method, is difficult to master and may cause mild trauma to the gums if not carried out appropriately with the correct brush.

Toothpastes

Toothpaste aids the removal of plaque and calculus (tartar) lessens the build up of plaque and tartar, provides a pleasant tasting mouth and fresh breath and can provide fluoride, antimicrobials and desensitising agents. Most commercially available toothpastes contain fluoride that gradually causes a hardening of the outer surface of the teeth. As fluoride has no notable oral or other side-effects, patients with scleroderma are advised to use a fluoride-containing toothpaste.

Fluoride mouthrinses

Fluoride mouthwashes (e.g. Fluorigard®) are also available and are particularly recommended for patients who have a dry mouth (xerostomia) as they may be particularly at risk of dental decay. Fluoride mouthrinses can be used on a daily or weekly basis and may be given in addition to fluoride-containing toothpastes. Fluoride mouthrinses should not be swallowed.



Other aids to toothbrushing

Disclosing agents

These stain dental plaque thus indicating areas of plaque left behind after toothcleaning.

Interdental cleaning devices

These are designed to remove plaque not cleaned from between the teeth during toothbrushing. Dental floss and dental tape are the most frequently used interdental cleaning aids. The floss or tape needs to be threaded between the teeth and gently curled around the side of the tooth, slid down to the gums and gently brought back up to the top of the tooth. These can be difficult to use, thus it may be best to use dental floss with a suitable floss holder.

Control of dietary sugar

Dental plaque formation is greatly enhanced by sugar (sucrose). To lessen the development of dental plaque, it is thus important to try to limit the consumption of sugary foods to meal times. Frequent intake of sticky sugary foods between meals may lead to increased dental decay.

Prevention of Gum Disease

Gum disease (gingivitis) can be prevented by effective toothcleaning. In addition mouthrinses such as Corsodyl®, Betadine® and Listerine® reduce levels of plaque, reduce the severity of gingivitis. Advice about a suitable mouthrinse should be from your dentist, therapist or dental hygienist.

Dentine hypersensitivity

Dentine hypersensitivity manifests as diffuse dental pain in response to cold air, cold water or fruit drinks. The pain is short lasting and dull in nature. Use of a good toothbrush, an effective method of toothcleaning together with a fluoride-containing toothpaste minimises the risk of dentine hypersensitivity.

TREATMENT OF DENTINE HYPERSENSITIVITY

The treatment of dentine hypersensitivity comprises:

- Modification of toothbrushing technique to ensure the teeth and gums are not damaged by overzealous or inappropriate toothbrushing
- Application of desensitising agents
- Regular use of a desensitising toothpaste (e.g. MacLeans Sensitive® or Sensodyne F®)
- Daily use of a fluoride mouthrinse - (please remember - the mouthrinse should not be swallowed)



Dry mouth (xerostomia)

Some patients with scleroderma can develop dry mouth as a consequence of some destruction of the salivary glands (secondary Sjogren's syndrome). Dry mouth can cause difficulties in speech and swallowing, and increase the liability to caries, gingivitis, fungal infection of the mouth and bacterial infection of the salivary glands. The lining of the mouth (oral mucosa) can become sore or burning. A lack of saliva can give rise to an unpleasant taste, and foods may become bland in taste ('card-board like'). Finally a lack of saliva can lessen the retention of upper dentures.

TREATMENT OF DRY MOUTH

The management of long-standing dry mouth in scleroderma comprises principally:

- Salivary substitutes
- Moisturising gels
- Non-specific stimulation of salivary secretion
- Stimulation of saliva production

Salivary substitutes

These comprise two main approaches – water and drinks that the patient sips on a regular basis, and artificial salivary substitutes - often provided by doctors and dentists.

Many individuals find that sipping water or a non-sugary drink on a regular basis provides them with some degree of relief of symptoms, however, this can be impractical or impossible for some people. Certainly drinking or sipping sucrose-containing drinks must be avoided.

A range of synthetic salivary substitutes are available, these are either based upon carboxymethylcellulose (e.g. Glandosane[®], Luborant[®], Salivace[®] and Saliveze[®]) or porcine gastric mucin based products (e.g. Saliva Orthana[®]). No one product is better than another, and individuals often vary greatly in their preference of agents. Alcohol-free mouthrinses are also being suggested to be of benefit (e.g. BioXtra[®] and Biotène[®]).

If dryness at night is a particular problem, then using a teaspoonful of olive oil as a mouthwash last thing at night may be helpful and making sure that your bedroom's atmosphere is not too hot and is moist maybe be helpful. A saucer of water on the radiator is an easy way of doing this.

Moisturising gels

A number of moisturising gels that can be rubbed on the dry surfaces of the mouth are now available (e.g. Oralbalance® and BioXtra®).

Non-specific stimulation of saliva secretion

The non-specific stimulation of saliva production is best achieved with chewing gums. However patients, particularly those with dentures, often find chewing gums difficult or unacceptable. At least two chewing gums are suggested as having been developed specifically for the management of dry mouth, these are Biotène® dry mouth gum and BioXtra® chewing gum. A non-sucrose based pastille (Salivex®) is also available.

Stimulation of saliva production

Pilocarpine (Salagen®) stimulates saliva production. The efficacy of Salagen® depends on existence of residual gland function; therefore, early treatment provides the greatest potential for treatment success. If no gland function remains, pilocarpine cannot exert its stimulatory effects. The main side-effects experienced by some patients are sweating, urinary frequency, and flushing; however, these tend to decrease over time. Your doctor or specialist may be able to prescribe this.

Denture problems

Scleroderma can give rise to a number of denture problems:

Poor retention of the upper denture due to a dry mouth - the upper denture can become easily dislodged causing rubbing and ulceration of the adjacent mouth lining (oral mucosa). This can be minimised by applying salivary substitutes to the fitting surface of the denture, and having the denture regularly checked and/or modified.

Denture associated candidal infection - poor denture cleaning, in particular infrequent cleaning of the denture or wearing the denture during sleep may lead to the development of a candidal infection that manifests as a painless red patch beneath the upper denture. To minimise this, dentures should be regularly cleaned using soap and water and a denture brush. It is best to clean dentures after each meal or at least once daily. Toothpastes should not be used to clean dentures as these are too abrasive. In addition, dentures should not be worn while asleep. Antifungal cream (e.g. miconazole) can be applied to the fitting surface of the denture.

Angular stomatitis - poorly fitting dentures and dry mouth may cause the development of red patches or ulcers at the corners of the mouth (angular stomatitis). This can be avoided by the dentures being regularly checked by your dentist.



Advice on other oral complications

Mouth ulcers

When mouth ulcers occur, they can be very painful and maybe associated with thrush, or can develop due to normal movements of the tongue against the sharp, dry edges of the teeth, fillings or dentures. Cheek biting, due to lack of saliva can also cause ulcers. Mouth ulcers are often seen in immunosuppressed patients and are a common side effect of many of the disease modifying drugs such as methotrexate and cyclophosphamide. The best treatments are those with a small amount of steroid such as Corlan[®], pellets or Ad-cortyl in Orabase[®], ointment available on prescription or over the counter. Anti-fungal therapy may be required to treat candida.

White patches

White patches on the lining of the mouth (oral mucosa) can arise as a result of some drugs. The white patches are usually painless.

Salivary gland enlargement

Patients with long-standing dry mouth can have recurrent enlargement of one or more salivary glands. When painless, this usually is a consequence of inflammation of the gland. Painful swelling of a gland can be suggestive of bacterial infection.

Gum enlargement

Enlargement of the gums can be a side-effect of nifedipine (and other calcium channel blocker) therapy. The enlargement is painless.

Gingival Disease

The gums comprise an outer portion surrounding the tooth (the gingiva) and the periodontium - a band of fibres between the tooth root and bone.

Inflammation of the gingiva (gingivitis) leads to reddening and swelling of the gums, while inflammation of the periodontium (periodontitis) usually causes loosening and possibly loss of teeth.

Gingivitis which is common in all age groups of healthy and scleroderma patients, is due to dental plaque accumulation and is generally reversible. Periodontitis is less common than gingivitis and usually arises in middle to late age persons with long-standing gingivitis.

Gingivitis may be more common in scleroderma as a result of any accompanying dry mouth, and difficulty in tooth-cleaning due to limited mouth opening. The frequency and severity of periodontitis is not notably increased in scleroderma.

It is advised that all patients with scleroderma regularly attend a dentist and dental hygienist to ensure that they are able to maintain a good standard of oral healthcare.

The investigation and treatment of these, and other rare, oral complications of scleroderma can be undertaken by a Specialist in Oral Medicine.

Details of possible Specialists can be obtained from:

The British Society for Oral Medicine – www.bsom.org.uk

or

The Dental Council List of Specialists – www.gdc-uk.org

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